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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/597,113	06/20/2000	Roy C. Challberg	24-AT-6005	5948

7590

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EXAMINER

KEITH, JACK W

ART UNIT

PAPER NUMBER

3641

DATE MAILED: 03/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
**09/597,113**

Applicant(s)  
**Challberg et al**

Examiner  
**Jack Keith**

Art Unit  
**3641**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jan 21, 2003
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-6, 8-10, 12, and 13 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-6, 8-10, 12, and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 8/2/2002 have been fully considered.

Applicant's amendment to the claims overcomes the outstanding 112, second rejection of Paper no. 14. The 102 rejections utilizing Hiraiwa (JP 06-138275) and Kusuno (JP 04-296693) are withdrawn by the examiner.

The 103 rejection of Paper no. 14 has been revised below to correspond to applicant's arguments regarding the mini bundle fuel assemblies of either Hiraiwa and Kusuno having handles.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraiwa ('275) in view of Taleyarkhan ('021).

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Hiraiwa discloses applicant's inventive concept. Referring to figures 4-6 of Hiraiwa a nuclear reactor core configuration is disclosed. A large control rod (48/49) with each control rod comprising four control rod blades extending radially from a central portion and arranged at right angles to each other. The blades of the control rod define four fuel bundle (40) receiving channels. Note that four fuel bundles are located within each of the receiving channels.

Additionally note in figures 5-6 that the fuel bundles are arranged so that the control rods are in a staggered row pattern where each side of the fuel bundle is adjacent to a control rod blade.

While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

However, if not apparent that Hiraiwa discloses a conventional fuel assembly (assembly containing four fuel bundles) then Taleyarkhan teaches the use of mini-fuel bundles in the nuclear art (See figure 1 and columns 5-6, lines 59-2). Note that the mini-fuel bundle is provided with its own upper and lower tie plate and that each mini-fuel bundle is disclosed as separate from the adjacent mini-fuel bundle.

Accordingly, Hiraiwa discloses applicant's inventive concept. Taleyarkhan teaches that mini-fuel bundles are well known within the nuclear fuel assembly art.

Hiraiwa does not disclose the fuel bundles (41) as having their own handles to facilitate insertion and removal from the reactor.

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Note that Taleyarkhan teaches the use of a single handle to insert or remove the fuel assembly containing the mini-fuel bundles. See figure 1.

Clearly the adaptation of individual handles for each mini-fuel bundle is in no more than the duplication of parts. The courts have held that unless a new and unexpected result is produced a mere duplication of parts is held to be unpatentable. See MPEP § 2144.04 (VI)(B).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified mini-fuel bundles of Hiraiwa to have included individual handles, to gain the advantages thereof (i.e., facilitate the insertion and removal of individual mini-fuel bundles providing for decreased refueling times, shutdowns, etc.), as such results are in no more than, as set forth above, the duplication of parts.

4. Claims 1, 2, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusuno ('693) in view of Taleyarkhan ('021).

Kusuno discloses applicant's inventive concept. Referring to figures 1, 13 and 22 of Kusuno a nuclear reactor core configuration is disclosed. A large control rod (7) with each control rod comprising four control rod blades extending radially from a central portion and arranged at right angles to each other. Referring to figure 13 the receiving channels is defined by four fuel bundles (40).

Referring to figure 1 and 22 it would appear that the fuel bundles are arranged so that the control rods are in a staggered row pattern where each side of the fuel bundle is adjacent to a control rod blade.

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While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

However, if not apparent that Kusuno discloses a conventional fuel assembly (assembly containing four fuel bundles) then Taleyarkhan teaches the use of mini-fuel bundles in the nuclear art (See figure 1 and columns 5-6, lines 59-2). Note that the mini-fuel bundle is provided with its own upper and lower tie plate and that each mini-fuel bundle is disclosed as separate from the adjacent mini-fuel bundle.

Accordingly, Kusuno discloses applicant's inventive concept. Taleyarkhan teaches that mini-fuel bundles are well known within the nuclear fuel assembly art.

Kusuno does not disclose the fuel bundles (9)(figure 13) as having their own handles to facilitate insertion and removal from the reactor.

Note that Taleyarkhan teaches the use of a single handle to insert or remove the fuel assembly containing the mini-fuel bundles. See figure 1.

Clearly the adaptation of individual handles for each mini-fuel bundle is in no more than the duplication of parts. The courts have held that unless a new and unexpected result is produced a mere duplication of parts is held to be unpatentable. See MPEP § 2144.04 (VI)(B).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified mini-fuel bundles of Kusuno to have included individual handles, to gain the advantages thereof (i.e., facilitate the insertion and removal of individual

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mini-fuel bundles providing for decreased refueling times, shutdowns, etc.), as such results are in no more than, as set forth above, the duplication of parts.

5. Claims 4, 5, 8, 9, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Hiraiwa ('275) or Kusuno ('693) in view of Taleyarkhan ('021) as applied to claims 1, 2, 6 and 10 above, and further in view of the admitted prior art (figures 1-3).

The combination of either Hiraiwa or Kusuno in view of Taleyarkhan disclose applicant's inventive concept (see above). However, if not apparent that the combination disclose a reactor core comprising a top guide and core plate, then, as admitted by applicant boiling water reactors are known to have a top guide with a core plate and fuel assemblies spaced between them. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the known boiling water reactor core designs into the reactor core configuration of the combination (either Hiraiwa or Kusuno in view of Taleyarkhan), because such results are in no more than the utilization of conventionally known boiling water reactor designs in the nuclear reactor art.

### *Conclusion*

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

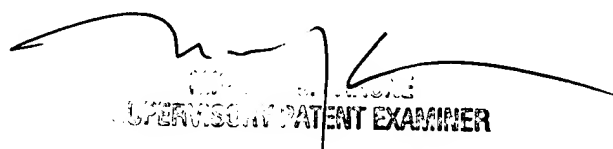
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Keith whose telephone number is (703) 306-5752. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

jwk

March 11, 2003



JACK KEITH  
SUPERVISOR PATENT EXAMINER